

THE INVENTION CLAIMED IS:

1. An SRD, comprising:

a substrate support adapted to hold and rotate a
5 substrate;

a source of fluid adapted to supply fluid to a surface of a substrate positioned on the substrate support; and

10 a shield positioned to receive fluid displaced from a substrate rotating on the substrate support, and comprising a substrate-facing surface at least a portion of which has a particle-blasted finish.

15 2. The SRD of claim 1, wherein the particle-blasted finish has a hydrophilic characteristic.

20 3. The SRD of claim 2, wherein the substrate support holds and rotates the substrate in a vertical orientation.

4. The SRD of claim 3, wherein at least part of the shield is at a higher elevation than the substrate support.

25 5. The SRD of claim 4, wherein at least part of the particle-blasted finish is above the substrate when the substrate is held and rotated by the substrate support.

30 6. The SRD of claim 4, wherein the shield is movable between a first position in which at least part of the shield is above the substrate when the substrate is held and rotated by the substrate support and a second position in which the shield does not obstruct placement of the substrate on the substrate support from a position above the
35 substrate support.

7. The SRD of claim 4, wherein the particle-blasted finish has a downwardly sloped cross section.

5 8. The SRD of claim 7, wherein a top surface of the shield has a downwardly sloped cross section.

9. The SRD of claim 1, wherein the shield comprises polycarbonate.

10 10. The SRD of claim 9, wherein the shield is a unitary piece of molded polycarbonate.

15 11. The SRD of claim 9, wherein the particle-blasted finish is a grit-blasted finish.

12. The SRD of claim 1, wherein the shield is a unitary piece of molded polycarbonate.

20 13. The SRD of claim 4, wherein the substrate-facing surface has surface features for directing fluid from an apex of the shield.

25 14. The SRD of claim 4, wherein the substrate-facing surface has a plurality of channels configured to direct fluid circumferentially along the shield.

30 15. The SRD of claim 4, wherein the particle-blasted finish has a downwardly sloped cross section and wherein the channels are configured to direct fluid along the downwardly sloped cross section.

35 16. A vertical SRD, comprising:
a substrate support adapted to hold and rotate a
vertically oriented substrate;

a source of fluid adapted to supply fluid to the surface of a substrate positioned on the substrate support; and

5 a shield system comprising a plurality of vertically and horizontally staggered shields positioned to receive fluid flung from a substrate rotating on the substrate support, at least one of the shields having a substrate-facing surface that has a particle-blasted finish.

10 17. The SRD of claim 16, wherein the plurality of shields includes:

15 a main shield wherein the substrate-facing surface is angled from a higher elevation closest to a first side of the substrate to a lower elevation closest to a second side of the substrate so that the fluid flows therealong to a lower edge of the main shield;

20 a lower shield positioned at a lower elevation than the main shield, extending from a point beneath the main shield to a point beyond the lower edge of the main shield, and being angled from a higher elevation closest to the lower edge of the main shield, to a lower elevation farthest from the main shield; and

25 a higher shield positioned at a higher elevation than the main shield, extending from a point above the main shield to a point beyond the higher edge of the main shield and being angled from a lower elevation closest to the higher edge of the main shield, to a higher elevation farthest from the main shield.

30 18. The SRD of claim 16, wherein at least a portion of the at least one particle-blasted finish has a hydrophilic characteristic.

19. A vertical SRD, comprising:

a substrate support adapted to hold and rotate a vertically oriented substrate;

5 a source of fluid adapted to supply fluid to the surface of a substrate positioned on the substrate support; and

10 a housing which encloses the substrate support, the housing having a top portion that has a slope adapted to cause fluid to flow therealong away from a region above the substrate support, the top portion having a lower surface that has a particle-blasted finish.

20. The SRD of claim 19, wherein at least a portion of the lower surface of the top portion has a hydrophilic characteristic.

15 21. A method of fabricating a component of an SRD, the method comprising:

20 forming a shield adapted to fit in an SRD housing and having a concave surface adapted to receive fluid displaced from a substrate held and rotated in the housing; and

25 particle-blasting the concave surface of the shield.

22. The method of claim 21, wherein the particle-blasting step is performed so as to impart a hydrophilic characteristic to the concave surface of the shield.

30 23. The method of claim 21, wherein the particle-blasting step includes grit-blasting the concave surface of the shield.

24. The method of claim 21, wherein the forming step includes molding a polycarbonate material.

25. A shield for at least partially surrounding a substrate to be spin dried, the shield comprising:

a concave surface adapted to extend at least partially around a perimeter of a semiconductor substrate
5 and to face toward the semiconductor substrate, and having a particle-blasted finish that exhibits a hydrophilic characteristic.

26. The shield of claim 25 wherein the concave surface has a plurality of surface features formed therein so as to increase surface area.
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27. The shield of claim 26 wherein the surface features are further adapted to direct fluid from an apex of
15 the shield, when the shield is vertically oriented.

28. The shield of claim 27 wherein the concave surface has a sloped cross section and the surface features are adapted to direct fluid along the sloped cross section.
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29. The shield of claim 27 wherein the surface features are adapted to direct fluid circumferentially along the concave surface.
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30. The shield of claim 27 wherein the surface features have a sinusoidal cross section.

31. A shield for at least partially surrounding a substrate to be spin dried, the shield comprising:

a concave surface adapted to extend at least partially around a perimeter of a semiconductor substrate
30 and to face toward the semiconductor substrate, and having a plurality of surface features formed therein so as to increase surface area.
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32. The shield of claim 31 wherein the surface features are further adapted to direct fluid from an apex of the shield, when the shield is vertically oriented.

5 33. The shield of claim 32 wherein the concave surface has a sloped cross section and the surface features are adapted to direct fluid along the sloped cross section.

10 34. The shield of claim 32 wherein the surface features are adapted to direct fluid circumferentially along the concave surface.

35. The shield of claim 34 wherein the surface features have a sinusoidal cross section.